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## **A Study on Process Automation Market**

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### ***Abstract:***

*The Process Automation Market study details the design architecture, market statistics and the market standards for process automation market. This study aims to capture the market roadmap with market sizes, revenue forecasts, market dynamics, application market and product trends, geographical analysis and price trends. The research also identifies different market dynamics, like drivers, restraints and opportunities of each of the markets. The data had been collected using primary and secondary sources. The results of this study helped to capture the market roadmap with market sizes, revenue forecasts, market dynamics, application market, product trends, and geographical analysis.*

**Keywords:** *Process Automation, Market Revenue, Market Crackdown*

### **1. Introduction**

The Process Automation Market study details the design architecture, market statistics and the market standards for process automation market. The overall process automation market is further segmented into technology, hardware, software and services. This study on process automation market aims to detail the aggregation of equipment, components, systems, original equipment manufacturers, and contractor services. The study is extensively segmented into segments like components and services, production process technology, applications and geography; each of these segments is further divided into sub-segments. The study also identifies different market dynamics, like drivers, restraints and opportunities of each of the markets. Major players of the current market and the players with high potential to enter the market have been identified and profiled. Apart from the company profiles, competitive landscape (CL) of the key players for each of the markets has been discussed in the report. The CL includes detailed market share analysis, mergers and acquisitions, collaborations, partnerships, new product developments, and the key growth strategies of each player.

### **2. Literature review**

According to Tariq Samad et.al (2007), the new developments that drive the technologies and are transforming the process automation. The paper discusses about the new trends in process automation. The replacement of the wired communication with the wireless communication was an emerged technology in process automation. Most of the process automation systems are delivering much of their through software programs. According to David Lawrence (2006), software i.e. Clear Quest which provides process automation and helps to control business processes. Automating the business management and the processes will help to reduce the cost, delay and errors. The automated workflow will help to manage the compliance processes. According to Ko de Ruyter et.al (1998), the issues relating to qualitative market research. The reliability of the qualitative research can be acceptable by operating in a systematic way in the interview or focus group. The results obtained from the qualitative research are real and full of ideas and the qualitative research provides an in depth insight. Qualitative research deals with the questions how people think about a subject and why they think that and not about the common opinion. According to Biren Prasad (1998), combining of the real time markets in order to improve the product by combining it with quality function deployment (QFD), value engineering and value graph. The QFD base value engineering helps the designer to know the needs of the company, supplier and the customer and also how to improve the product. Companies which will introduce new concepts and new technology will struggle with the largest market share. According to Julie Schoenfelder et.al (2004), the next decade how the market research in branding can be improved by qualitative methods. The design and the characteristics of the product form the first impressions and act as a means of brand associations. According to Christian Kowalkowski et.al (2008), how information and communication technology is affecting and changing the service processes. Customers participate in service production process and influence the satisfaction level and the quality. Relations between the customer and the provider are an important source of service development and innovation.

**3. Research Methodology**

The below figure explains the steps of research, within which, three broad level approaches have been considered: secondary research, primary research and the market crackdown. Within secondary research, value chain, key players, end-user applications, annual reports of key suppliers and few other parameters have been analyzed. During primary interviews, market numbers have been validated, market dynamics has been discussed, geographic market has been discussed and analyzed and the competitive landscape of the industry is discussed and verified.



Figure 1: Research Methodology

**3.1. Market Crackdown**

Both – “top-down” and “bottom-up” procedures were used and data triangulation procedure was implemented for market crackdown with respect to the “Process Automation Market. The bottom-up procedure was implemented in deriving the overall PA market by adding up the figures product-wise. Total market size was validated through revenue and revenue shares of the listed companies in the process automation market size. This overall process automation market size (revenue) was used in the top-down procedure to arrive at the market sizes of all individual sub-markets in the process automation technology market segmentation. This was validated with the original market size of the sub-segment markets.

**3.2. Porters Five Force Analysis**

Porter’s Five Force analysis is done to understand the competition and the threats of the market. This analysis also throws light on the bargaining powers of the supplier and the buyer. The following sections will discuss about the five different factors of porters analysis.

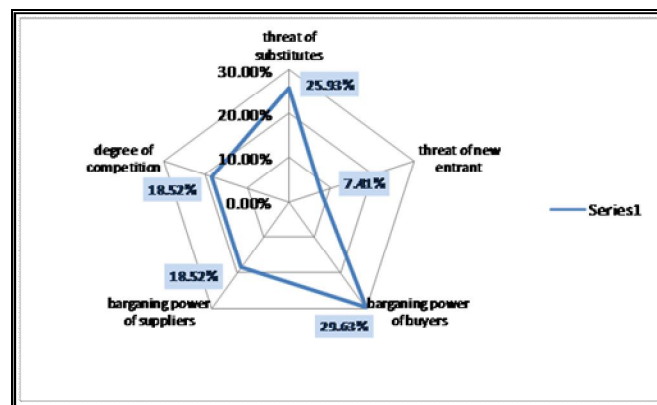


Figure 2: Porter’s five force analysis

**3.2.1. Threat from new entrants**

Threat from the new entrants is low as the supplier base is strong. The threat that exists in the current market is due to the small and medium level players. Even if these small or mid-level players enter the market, the threat will only be from the same segment players. The top 5-6 companies in this market hold around 80% of the market players and the remaining 200-250 companies that

are small and mid-level, hold the remaining 20% of the market share. These smaller companies help tier 2 and tier 3 level industries to migrate to process automation.

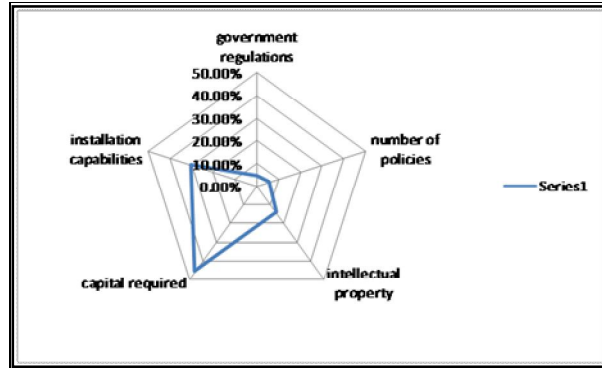


Figure 3: Threat from new entrants

3.2.2. Threat from substitutes

The overall process automation market doesn't have any major potential threat from the substitutes. The benefits of process automation outsmart any of its possible substitutes. The manual labor that is removed by automating a process costs much more on a longer run. The data visualization through SCADA output gives excellent picture of the process and helps optimization of the resources and decisions that are made for better productivity.

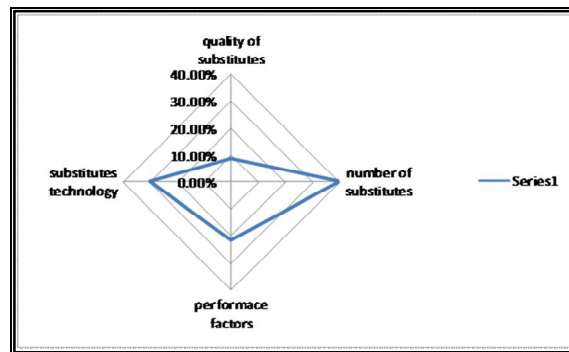


Figure 4: Threat from substitutes

3.2.3. Bargaining power of suppliers

Suppliers bargaining power is slightly more than medium. As discussed earlier, there are two kinds of suppliers in the automation market: a major player and a niche player. Major players have high bargaining power as there are very few big players in the industry. Hence very few players hold the capability to serve complex needs of a big and complicated process. Major industries like oil & gas, paper & pulp, petrochemical, waste water treatment and few others have less than 10 companies to choose from, which can serve their demands.

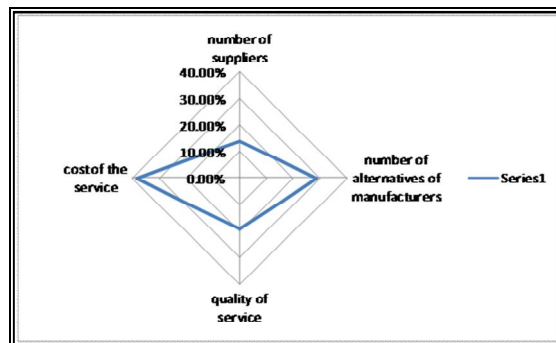


Figure 5: Bargaining power of suppliers

### 3.2.4. Bargaining power of customers

Customers are also of two types: large scale industries and small & mid-level industries. Large scale industries have very crucial processes that can cause huge losses if gone wrong. Therefore, these large scale industries can only rely on trusted and tested products. Only few companies in the market have trusted products and services and hence these industries have lesser options to choose from. In the case of large scale industries, the bargaining power is medium.

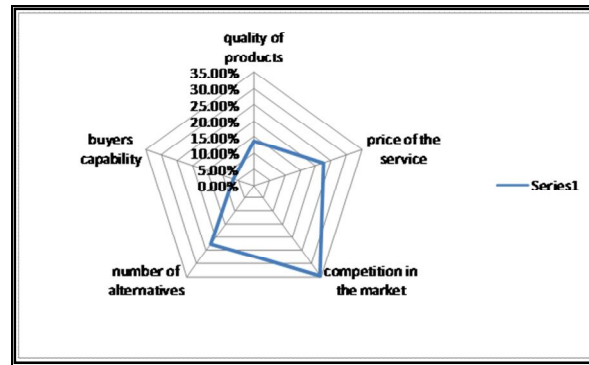


Figure 6: Bargaining power of customers

### 3.2.5. Degree of competition

The degree of competition is high in the global process automation market. It is quite evident from the analysis of the major suppliers, that the products and services offered don't have much variation in order to compete against each other. The contemporary products and services that are being offered in the market are creating a lot of close competition among the big players.

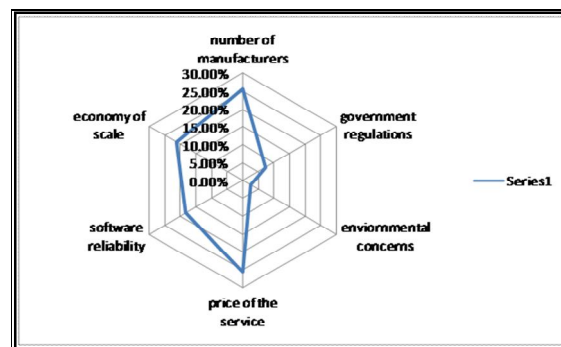


Figure 7: Degree of competition

## 4. Result & Analysis

The global process automation market revenue is expected to grow from \$86.07 billion in 2012, to \$124.29 billion in 2018, at an estimated CAGR of 6.05% from 2013 to 2018. The APAC region is expected to rejuvenate the process automation market owing to the escalated demands from the oil and gas extraction, wastewater treatment, and pharmaceutical verticals. The major restraints of process automation market are sluggish growth in developed markets and dearth in talent. The developed market like Americas, Western Europe, and few more are well saturated for the process industry. The process automation market does not have a full-fledged scope in these markets as they are already flooded with process automation products and services. These markets have well developed industrial infrastructure and the scope stays in the services sector only. There is huge scope for the up-gradation and migration services; not many new projects are being seen as an opportunity for the suppliers. Talented developers and strong R&D departments are missing among the small and medium level suppliers of the niche market. The process automation industry is missing the push from the niche players whereas the big players are not interested in serving the smaller end-users. The smaller suppliers are not able to exhaustively use the potential of the market available to them. The small end-users are sometimes not comfortable enough to invest in process automation systems and equipments due to the lack of talent amongst the small suppliers. The talented bigger suppliers cannot be approached or looking at it from another angle, bigger players are not interested in serving the niche market. Hence finding and using the talent is slowing the growth of the process automation market. The burning issues of process automation market are reliability issues with cloud computing and Saturated CAPEX (capital expenditures) in North America and Europe set to disturb the pecking order of the automation geographic penetration. Cloud computing and wireless communications both have reliability issues with them. It's an old problem with wireless – there are too many standards, probably because the technology is still in an infant stage and standards tend to freeze technology prematurely. The security of the data is ensured but continuous developments and advancements in the cyber-attacks are making the end-users a bit skeptical in the full-scale adoption of this technology as they are not 100% sure of their data security. In recently held conferences, several end-users

have shown their concerns over the data security with respect to its transmittance. The process automation market is very sensitive to the capital expenditure (CAPEX) industries and geographic regions. Looking at industry side, it is clear that oil & gas is majorly driving the CAPEX market, and geographically Middle East and APAC are the regions where oil & gas industries are driving the process automation market to a different level. On the contrary, North America and Europe are those geographic regions that contribute major chunk for the process automation market revenue. Oil & Gas potential for process automation having exhausted in these regions, the market growth percentage has slowed down by almost a couple of units.

### 5. Future Scope

The power industry is one of the major users of automation products, having a significant market share. Power industry is one of the booming sectors for process due to the high demand supply gap in a majority of the developing countries. Process Automation products have a large scope in the power sector as these products are used to a large extent in- generation, transmission and distribution of power. The major players of Process Automation in power sectors are ABB (Germany), Siemens Energy &Automation (Germany), and Emerson process management (U.S.). Automation companies are now diversifying their portfolio and increasing the scope of their products to suit various industries. One of the major factors which increased the automation market's revenue is mergers and acquisitions activities, which happened in last few years. One of the emerging trends in the process automation industry is the utility of the communication systems. The current communication mainly occurs over the wired standard analog, hart, profibus and mainly on foundation field bus. The recent developments have occurred where wireless communications are being deployed. Major companies that are manufacturing wireless products are Emerson (U.S.) and Honeywell (U.S.). This technology can reduce the hardware cost by a huge margin and also the maintenance cost can also reduce. The slow but steady acceptance of the wireless technology is one of the most critical emerging trends for the process automation market. The impact of wireless process control networks is expected to be a strongly disruptive influence on the process control market in the future.

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